Supreme Court, U. S.
FILED.
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JAMES H. McKENNEY,
CLERK.

IN THE

Supreme Court of the United States.

October Term 1896.

No. 763.

Ex parte JOHN CLAFLIN, as Executor, etc., *et al.*,
Petitioners.

BRIEF IN ANSWER TO SUPPLEMENT TO BRIEF OF PETITIONER.

BENJAMIN F. LEE,
Of Counsel for Respondent.

In the Supreme Court of the United States,

OCTOBER TERM, 1896.

Ex parte, JOHN CLAFLIN, as Executor, etc., *et al.*, Petitioners.	No. 763.

BRIEF IN ANSWER TO SUPPLEMENT TO BRIEF ON BEHALF OF PETITIONERS.

Statement.

On March 23, 1897, there was served upon us a printed copy of a petition for writ of certiorari to the Circuit Court of Appeals for the Second Circuit, containing thirty-four pages, and also a brief in support of said petition, together with a notice that the same would be brought before the Court on Monday, March 29, 1897.

On Saturday, March 27, 1897, at a very late hour in the afternoon, there was served upon a clerk in our office, a certificate or statement, signed by Francis M. Scott, Esq., Corporation Counsel of the City of New York.

On the return day, shortly before the opening of Court, we found on file in this matter, said certificate, which had been incorporated with the petition as an additional or thirty-fifth page thereof, a Supplement to Brief for petitioners, which had never been served upon us, and ten copies of a newly printed book, purporting to be copies of the record in the Circuit Court of Appeals. No copy of this book was ever served upon us, nor was there a copy to spare for delivery to us. It had not been printed under the direction of the clerk, and it did not contain the usual side-paging indicating the paging of the original. As our Brief and Answer to the petition refer to the paging of the original record in the Circuit Court of Appeals, they became unintelligible so far as the references were concerned.

On the presentation of the petition, the Court gave us five days' time within which to answer the paper served upon us on Saturday, March 27, 1897, and the new matter that had not been served upon us which was placed on the files on Monday, March 29, 1897.

This paper is filed in accordance with said permission.

The difficulty in regard to the paging was arranged by the petitioners requesting the clerk to have the ten printed copies of the record together with three additional copies, which were telegraphed for, side-paged to correspond with the original pages of the record in the Circuit Court of Appeals, to which all the references in respondent's papers relate.

BRIEF IN ANSWER TO SUPPLEMENT TO BRIEF.

Petitioners' new brief contains a copy of the second decision of the Circuit Court of Appeals in this cause, reported in the *Official Gazette* of the United States

Patent Office, Vol. 78, p. 1739, and already referred to in our former brief. It is preceded by certain introductory remarks and is succeeded by an argument.

Hand-made Plaiting.

In the Supplement to Brief, criticism is made upon the second opinion of the Court on the subject of the actual manufacture of hand-made plaiting. The statement made by the Court is fully supported not only in the manner stated in the opinion, but also by other testimony contained in the record.

Mr. Smith, the representative of the defendants testified before the Master that two years before he saw machine-made plaitings, garments had been sold, trimmed with similar plaitings, made by hand "by placing the goods between two pieces of tin and pressed down flat." (Rec. p. 144).

Complainant's witness, Henry S. Brown, also states that, to make hand-made plaiting of the kind in question, it is only necessary that it should be skilfully and properly made, and that proper time should be taken. (Rec. p. 252).

On page 5 of the Supplement to Brief, reference is made to what the petitioners call "ironed-out pleats," and also to "unironed pleatings." These statements seem to wholly ignore the fact that the ironing down or smoothing down of the plait, as fast as it is formed by the crimper, is one of the principal features of the operation of the Crosby & Kellogg patent in suit. This very ironing feature is mentioned in the Crosby & Kellogg patent no less than nine times, and the smoother is an element of the second claim, its function being described in the specification as that of "smoothing down or flattening the crimp by its spring pressure upon the goods" (p. 360, col. 1; p. 361, col. 2; see

also Brevoort, Rec. pp. 287, 288). To imitate the smoothing process of the Crosby & Kellogg patent by hand process, it is necessary to do what the Crosby & Kellogg patent does with each plait. In that patent the goods are folded and pass to the holder or "smoother," thereby producing a plait with a clearly defined edge. (Rec. p. 68, Master's Report).

The operation of the Crosby & Kellogg mechanism in smoothing down each plait as fast as it is made, thus bringing the same to a well defined edge, was most clearly illustrated by reference to "Complainant's Exhibit, Bias Side Pleater," and similar machines. The Circuit Court of Appeals says of these machines (77 O. G. 976, col. 2):

"They were the patented machines without the stitching mechanism and with the ordinary rough-surface feed spoken of in the specification. If heat was required, it was furnished by means of gas, which was carried in a pipe under the bed or cloth plate."

It is evident that when goods are made up as Mrs. Smith made them, and the uneven plaits unevenly spaced are secured in place by sewing, subsequent ironing can have no tendency whatever to improve the regularity and evenness of the goods. It is a very different thing from measuring and forming each plait and its space carefully by hand and then smoothing down each plait to a well-defined edge after it has been so formed. Plaiting approaching perfection can be made by hand in that way if sufficient care be taken. Some goods will require that the smoothing should be made by an ordinary hot flat iron or some similar instrument. Other goods would retain the plaits without that particular kind of smoothing or ironing instrumentality and would not need heat.

Rule as to Burden of Proof.

The Supplement to Brief finds fault with the rule as to burden of proof laid down by the Circuit Court of Appeals. That Court says in its second opinion (78 O. G., 1740), that "no new rule of law was announced in regard to the burden of proof." The Court simply followed the familiar rule set forth in *Thomson* vs. *Wooster*, 114 U. S., 104, 106, which will be hereafter referred to, and also in *Sessions* vs. *Romadka*, 145 U. S., 25, 45-49; *Crosby Valve Company* vs. *Safety Valve Company*, 44 Fed., 66, 68; 141 U. S., 441, 452-458; *Hurlbut* vs. *Schillinger*, 130 U. S., 459, 471; *Callaghan* vs. *Myers*, 128 U. S., 617, 665; *Tilghman* vs. *Proctor*, 125 U. S., 137, 143; *Manufacturing Co.* vs. *Cowing*, 105 U. S., 253, 255; *Mers* vs. *Conover*, 125 U. S., 144 (Note); *Elizabeth* vs. *Pavement Company*, 97 U. S., 126; *Cawood Patent*, 94 U. S., 695, 710; *Williams* vs. *Rome, Watertown and Ogdensburgh Railroad*, 18 Blatchford, 181 (approved in *Sessions* vs. *Romadka*, 145 U. S., 47).

It is evident from an examination of the record of the case of *Thomson* vs. *Wooster*, 114 U. S., 104, which was before the Circuit Court of Appeals as part of the papers presented on the argument of the appeal, that the counsel then in charge of this case before the Master followed exactly the line of proof that the Supreme Court held to be sufficient in that case. We call the attention of this Court to the evidence on the subject, all of which is contained on pp. 35 and 39 of the record in *Thomson* vs. *Wooster*, in the custody of the Clerk of this Court.

The Circuit Court of Appeals in its second opinion (78, O. G., 1740), speaks of the sum found to be due by the Master as "the amount which had been apparently made out by the testimony."

The Master gave the defendants the benefit of every doubt. He refused to allow the complainant anything for the use of the machines during 1873, because the defendants' books for that year were lost and the complainant could give no definite proof of the number of yards of plaiting made on the machines in that year (Rec., pp. 82, 69).

The witnesses for complainant before the Master, who testified as to the cost of making plaitings by hand, proved the cost to be from fifteen to twenty cents per yard (Rec., pp. 104-128). The Master adopted the lowest sum mentioned as the basis of his computation of profits (p. 69).

There was other evidence before the master that demonstrates conclusively that he arrived at a correct conclusion.

Alexander E. Kursheedt, now deceased, in answer to questions put to him by Mr. Wetmore, defendants' counsel, testified before the Master, in 1891, that in the years 1872 and 1873 ordinary cambric plaitings from two to three inches wide were sold at wholesale at $3 to $4 a dozen yards (p. 246). This would be from twenty-five to thirty-three and a third cents per yard. He also testified (pp. 236, 237) that the cost of the linen or cotton material entering into a yard of plaiting such as was made by the defendants, four inches wide, would be six cents. These materials were of substantially the same character and value as the cambric spoken of by him. The material, therefore, entering into a three-inch strip of such plaitings would have cost five cents. Taking five cents as the cost of the material, and half a cent a yard as the cost of plaiting by machinery, the total cost would have been five and a half cents per yard as against a selling price of from twenty five to thirty-three and a third cents per yard, making a profit of

from nineteen and a half cents to over twenty-seven cents per yard. Assuming the correctness of the Master's finding that the cost of hand-made kilt plaitings in those days was fifteen cents per yard, the cost of the material being five cents per yard, this would make the cost of the goods twenty cents per yard, and the profit in selling the same would be from five cents to thirteen and a third cents per yard. There can be no conceivable reason for the successful maintenance of these high prices, except the fact that to have made competing goods successfully by hand would have cost so much as to make it necessary to ask from twenty-five to thirty-three and a third cents a yard for the plaiting in order to realize a substantial profit. Mr. Alexander E. Kursheedt was the largest and most experienced manufacturer of this class of goods in the United States during the years in question and at the time when his deposition was taken, and his evidence upon this subject was uncontradicted and undisputed.

For convenience of reference we append hereto a copy of the Master's report.

It is instructive to observe that the opinion of Judge Coxe in the Circuit Court, which sustained the defendants' exceptions to the Master's report, contains no suggestion that the evidence adduced before the Master to establish the cost of making plaitings by the patented machines and the cost of making plaitings by hand, was in any respect insufficient. Judge Coxe found fault with the adoption of the cost of hand-made plaitings as the standard of comparison, because the machines were so effective and prolific as in his opinion to constitute an exception to the familiar rule of law on this subject. As he expresses it: "An article costing a dollar cannot compete successfully with a better article costing a mill and no rational being would attempt such a competition" (62 Fed., 453, 456). This

illustration is wholly inapplicable to the facts of the case as the Circuit Court of Appeals has clearly shown (77 O. G., 977).

Mr. Scott's Certificate.

The certificate of Francis M. Scott, Esq., Counsel to the Corporation of the City of New York, is so vague and indefinite, that it would not seem to require any notice on our part.

We have, however, made diligent inquiry in regard to pending litigations against the city. The only case that we can discover, to which the certificate can possibly allude, is the case of *Campbell* vs. *The Mayor, etc., of the City of New York*, referred to on page 32 of the petition, (9 Fed. 500, 35 Fed. 504, 36 Fed. 260 and 47 Fed. 515). In that case a Master's Report bearing date December 21, 1895, awarded to the complainant profits to the amount of $28,336. Both parties excepted to this report. The exceptions came on for hearing before Judge Wheeler on October 20, 21, 22 and 23, 1896, and a decision has not yet been rendered. Edmund Wetmore, Esq., is the special counsel having particular charge of the case, and he argued it on behalf of the city before Judge Wheeler, as well as before the Master. The argument before the Court took place after the first decision of the Circuit Court of Appeals in *Tuttle* vs. *Claflin* (77 O. G., 973; 76 Fed., 227), and before the second decision (78 O. G., 1739). In a brief filed by John McDonald, Esq., in support of complainant's contention in that case, the first decision in *Tuttle* vs. *Claflin* is alluded to.

Mr. McDonald, in his brief (p. 18), cites *Elizabeth* vs. *Pavement Company* (97 U. S., 126), and *Tuttle* vs. *Claflin* (76 Fed. Rep., 227), in support of one of his propositions; on pages 24 and 25 he cites *Elizabeth* vs.

Pavement Company (97 U. S., 126), *Crosby Valve Company* vs. *Safety Valve Company* (141 U. S., 441), and *Tuttle* vs. *Claflin*, *supra*, in support of the proposition laid down in the first-mentioned case by this Court (97 U. S., 126), which he quotes as follows: "The defend-" ants used the whole of the Nicholson patent. If, as " was claimed, they superadded the addition made to " it by Brocklebank and Trainer, they, the defendants, " failed to show that such addition contributed to the " profits realized. The burden of proof was on them." And on page 26 he speaks of "the principle laid down " by the U. S. Supreme Court in the case of *Elizabeth* " vs. *Pavement Company*, and by the Circuit Court of " Appeals, *Tuttle* vs. *Claflin*, *supra*."

Mr. Wetmore appears to have filed two briefs and a printed argument in that case. In one of the briefs, on page 21, he cites the case of *Tuttle* vs. *Claflin* (76 Fed. Rep. 227), but he makes no suggestion that the case contained any new or unfamiliar doctrine; in the other brief, on page 3, he makes a brief allusion to *Tuttle* vs. *Claflin* on the question of marking and notice. The printed report of Mr. Wetmore's argument concludes as follows:

"The suit is now nineteen years old. Here is the record that was taken before the Master. It would be a moderate computation to say that every one of those pages—most of them unnecessary—cost at least, to both parties, $100 a page. Now, for heaven's sake, let there be a stop to that. The case of *Tuttle* vs. *Claflin* is a precedent. If your Honor, upon looking at this case, upon looking at the findings of the Master, think that he is mistaken, we hope the Court itself will make the necessary rectification. If your Honor thinks that more should be found, we will take your Honor's conclusion upon that subject, for it would be cheaper to take any amount that it would be possible for your Honor to name than it would be for us to turn around

and go back before Mr. Shields and recommence the work of going into testimony in regard to transactions that took place nearly a quarter of a century ago, during which a generation of men have disappeared, and to go on day by day and step by step prolonging the hope on the part of complainant that some administration may come into the city of New York that will settle this case. With these requests, I leave our rights to the wisdom and discretion of the Court."

We have made as careful an examination of the briefs and arguments in *Campbell* vs. *The Mayor*, as the limited time at our disposal and their great length would permit. These are the only allusions that we have been able to find to the case of *Tuttle* vs. *Claflin* in the briefs and arguments presented to Judge Wheeler, aggregating nearly 500 pages.

In conclusion, it is pertinent to remark that the City of New York is amply able to take care of itself, and this Court, by *certiorari* or otherwise, will give the city such relief as may be proper, upon good cause shown.

BENJAMIN F. LEE,
Of Counsel.

Master's Report.

U. S. CIRCUIT COURT,

SOUTHERN DISTRICT OF NEW YORK

IN EQUITY.

THEODORE A. TUTTLE, Trustee in Insolvency of the Elm City Company.

against

JOHN CLAFLIN, as Executor of the Last Will and Testament of Horace B. Claflin, deceased; JOHN CLAFLIN, EDWARD E. EAMES, HORACE J. FAIRCHILD, DEXTER N. FORCE and DANIEL ROBINSON.

To the Honorable Judges of the Circuit Court of the United States for the Southern District of New York:

I, GEORGE F. BETTS, the special Master appointed in and by the interlocutory decree in the above-entitled cause, to take and state an account of the profits, gains and advantages which the defendants or either of them have derived or received, or to which they may be entitled by reason of any infringement of the patent in said decree mentioned, and to assess all damages sustained by the Elm City Company or the complainant as its trustee, or either of them, by reason of any infringement of said patent by the said defendants, do report as follows:

I have been attended by the respective parties and their counsel, and have heard and taken the proofs, and allegations presented to me on their behalf, as they appear hereto appended, and I do find therefrom, as matter of fact, that during the years 1873, 1874, 1875, 1876, 1877, 1878 and 1879 the defendants had in use in their business at various times four roller pleating machines, some of which were known as the Griffith and the others as the Fanning machines, which were very similar to each other, and all of which infringed the second and fourth claims of the complaint's patent.

I further find as matter of fact that the device described in said patent, and claimed in its second claim, of the use of a reciprocating knife or folding blade which folds the goods over itself and up to a holder or smoother, thereby producing pleats with clearly defined edges and a well-defined piece of pleated goods in regular successive pleats, was fundamently new and was a pioneer invention in the art of pleating goods.

I further find as matter of fact that there has not been at any time whatever up to the present time any method or device, except hand labor, known or used other than that described in said patent and claimed in its second claim, whereby goods could be pleated or folded to a clearly defined edge so that the product should be a well-defined piece of pleated goods in regular successive pleats.

I further find as matter of fact that the invention described in the Crosby and Kellogg Patent and claimed in its second claim is the essential feature of both the Griffith and Fanning machines, without which they would have been worthless, and that each of the said machines embodied the form in which the defendants clothed the said invention and did not contain any new devices that required invention or more than average mechanical ability to introduce.

I further find as matter of fact that during the period of their said infringement of said patent, the defendants have pleated four hundred and eighty-three thousand nine hundred and ten (483,910) yards of goods, which would have cost (if other than woolen) fifteen cents per yard to pleat by hand, making a total of $72,586.50, and that 60,489 yards of the above-mentioned goods were woolen goods, which would have cost ten cents more per yard to pleat by hand, making $6,048.90 additional, and making an aggregate total cost of $78,635.40; and that the cost of pleating said goods by the device described in said patent, and claimed in its second and fourth claims, and used by said defendants, was a half cent per yard, making the total cost of pleating said 483,910 yards by that method to have been $2,419.55, and therefore making the total saving that resulted from using said method upon the above-mentioned goods instead of hand pleating to be $76,215.85.

I further find that no sufficient proof was introduced before me as to any quantity of goods having been pleated by the defendants in the year 1873.

I further find, as matter of fact, that there was not any established license fee under the Crosby and Kellogg Patent.

I do not assess any damages against the defendants for their infringement of the said patent.

I do therefore report the sum of seventy-six thousand two hundred and fifteen $\frac{85}{100}$ dollars as the profits, gains and advantages which the said defendants have derived, received or become entitled to by reason of their infringement of the patent in said decree referred to.

All of which is respectfully submitted.

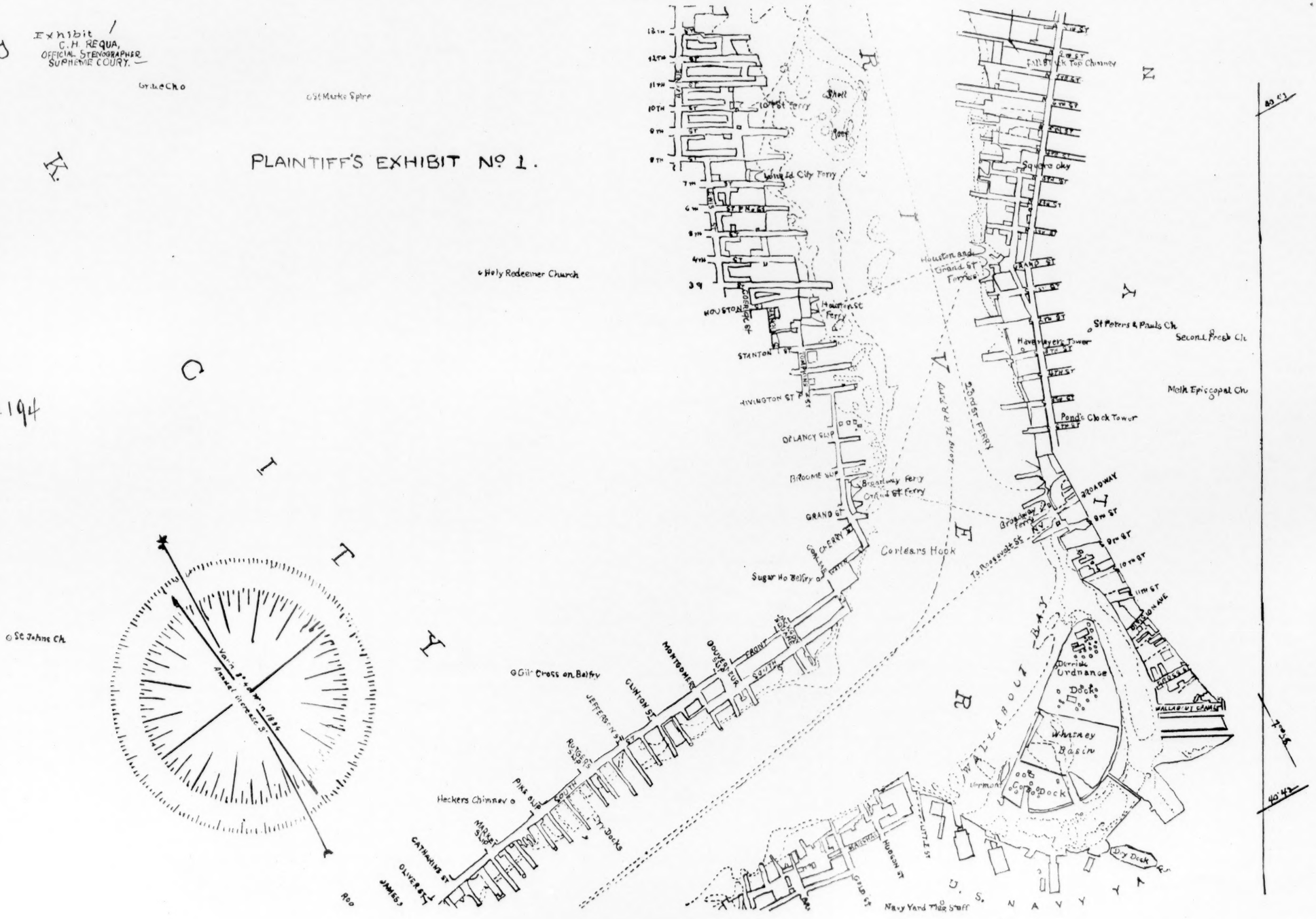
August 24, 1893.

GEO. F. BETTS,
Special Master.

Exhibit 1
C.H. REQUA,
OFFICIAL STENOGRAPHER
SUPREME COURT.

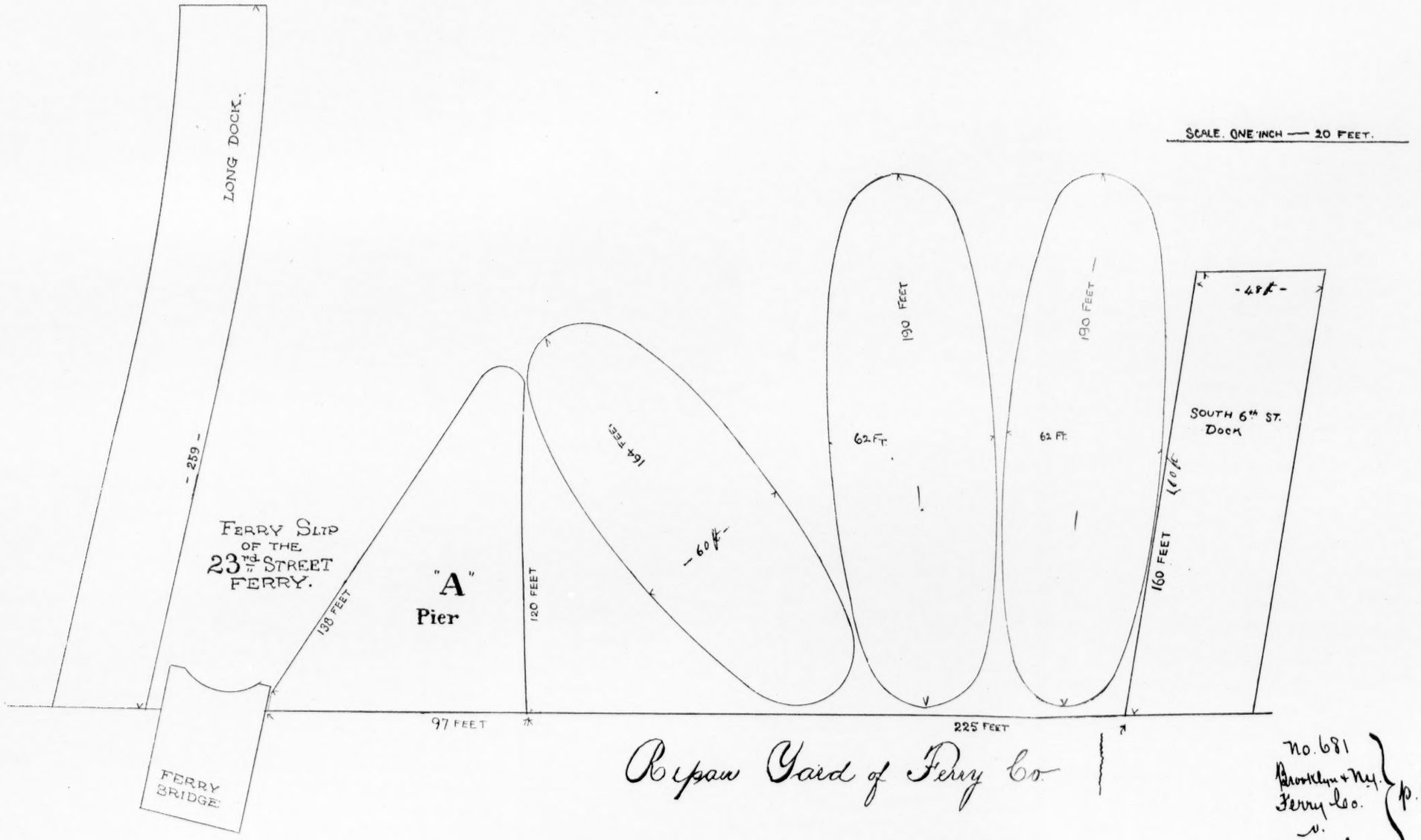
No. 681.
Brooklyn
v. New York
Ferry Co.
v.
McMahon
p. 194

PLAINTIFF'S EXHIBIT No 1.



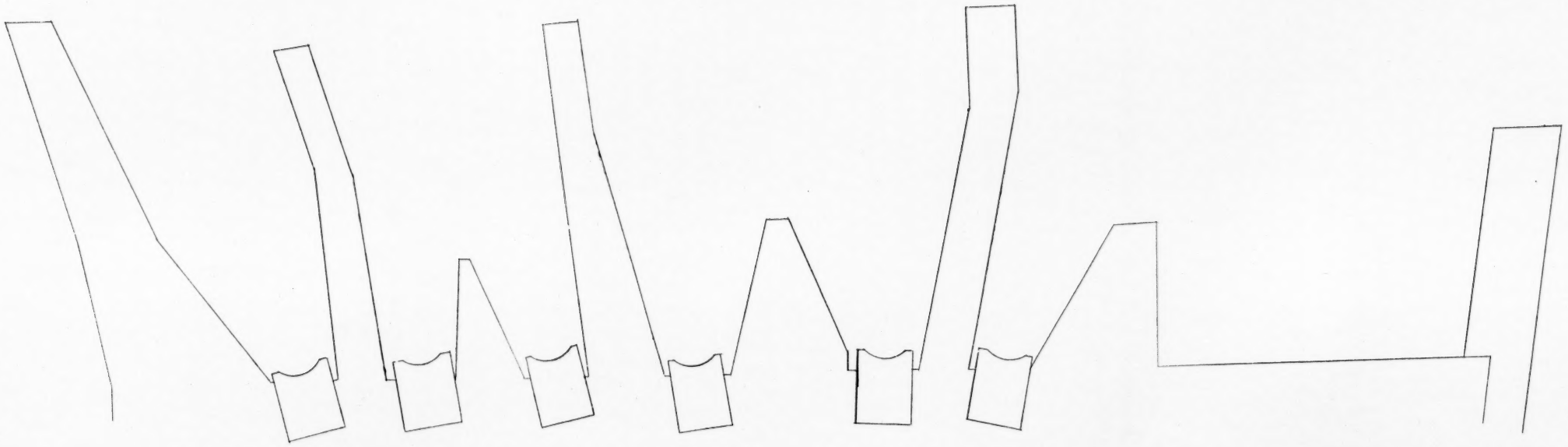
NEW YORK SHORE.

23d St. Ferry, New York.



No. 681
Brooklyn & N.Y. Ferry Co.
v.
McMahon
p. 196

DEFENDANT'S
EXHIBIT A.



DEFENDANT'S
EXHIBIT B.

no. 681.
Brooklyn & N.Y. Ferry Co.
v.
McMahon
} p. 197.

2 Sheets—Sheet 1.

C. O. CROSBY & H. KELLOGG.

FRILLING AND CRIMPING MACHINE.

No. 37,033. Patented Dec. 2, 1862.

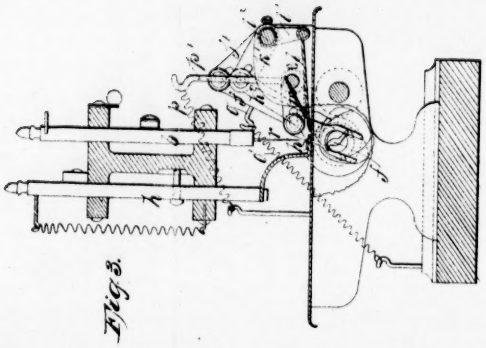


Fig. 3.

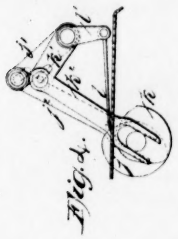


Fig. 4.

Fig. 5.

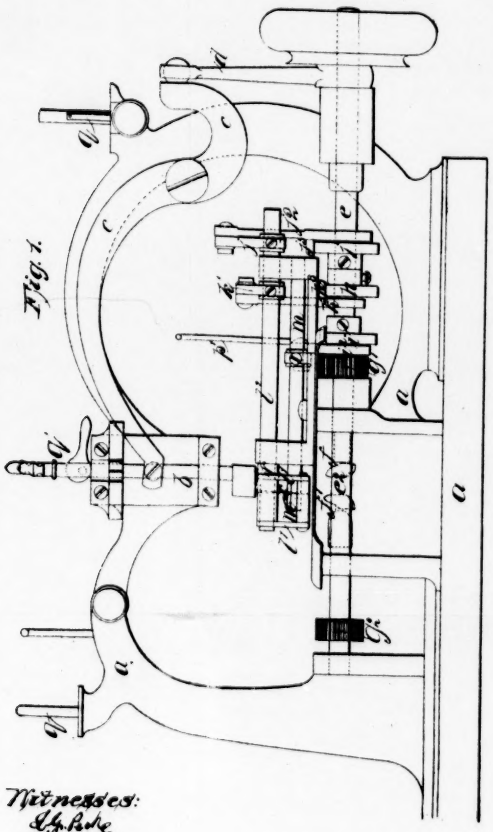


Fig. 1.

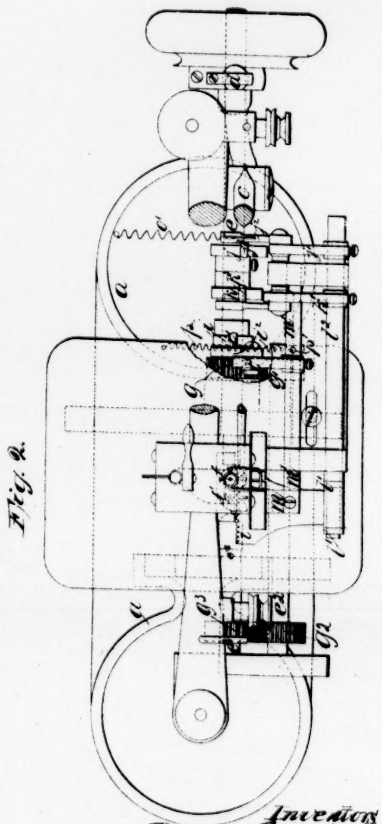


Fig. 2.

Witnesses:
G. G. Rose
E. H. Shelton

Inventors
C. O. Crosby
Henry Kellogg

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

2 Sheets—Sheet 2.

C. O. CROSBY & H. KELLOGG.

FRILLING AND CRIMPING MACHINE.

No. 37,033. Patented Dec. 2, 1862.

Fig. 7.

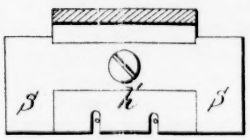


Fig. 8.

Fig. 9.

Fig. 10.

Fig. 11.

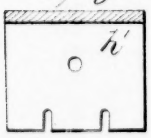


Fig. 12.

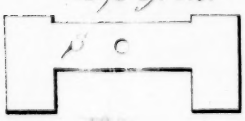
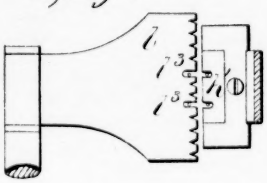


Fig. 6.



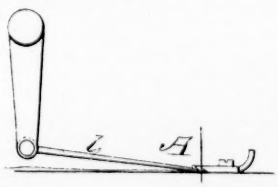
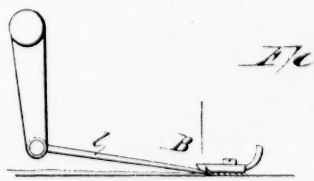


Fig. 14.



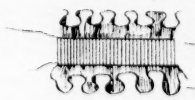


Fig. 13.

Witnesses:
E. G. Reed
C. M. Keller

Inventors:
C. O. Crosby
Henry Kellogg

UNITED STATES PATENT OFFICE.

C. O. CROSBY AND HENRY KELLOGG, OF HARTFORD, CONNECTICUT.

IMPROVEMENT IN MACHINES FOR FRILLING AND CRIMPING.

Specification forming part of Letters Patent No. **37,033**, dated December 2, 1862.

To all whom it may concern:

Be it known that we, C. O. CROSBY and HENRY KELLOGG, of the city of Hartford, in the State of Connecticut, have invented a new and useful Machine for Frilling or Crimping Muslin, Linen, and other Textile Materials; and we do hereby declare that the following, taken in connection with the drawings, is a full, clear, and exact description thereof.

In the drawings, Figure 1 is an elevation of the machine from that side on which the material to be crimped enters. Fig. 2 is a plan of the same, certain parts being represented as broken away so as to show others lying beneath them. Fig. 3 is a vertical transverse section through the machine. Fig. 4 is a detail showing the cams that actuate the crimper and the crimper itself. Fig. 5 is a detail showing the crimper-spring and its actuating-cams. Fig. 6 is a plan in detail of the crimper and presser-foot and its auxiliary smoother. Fig. 7 is a top view of the same on a large scale. without the crimper. Fig. 8 is a front elevation of the same. Fig. 9 is a plan of the under side of the same. Fig. 10 is a section and side elevation thereof. Fig. 11 is a plan of the presser-foot; Fig. 12, a plan of the auxiliary smoother; Fig. 13, a sketch of the article made by the machine, and Fig. 14 a sketch illustrating the operation of the crimper.

This machine consists essentially of two parts or subdivisions, the one for forming the crimps and the other for securing them in place after they are formed, the latter being any ordinary mechanism for making stitches. In the drawings this mechanism is that described in Letters Patent granted to J. E. A. Gibbs August 10, 1858; but any other mechanism proper for sewing a seam may be used in place thereof.

The mechanism for forming the crimps consists of a crimper which both forms the crimps and spaces them, of a holder for holding the goods at rest while each crimp is formed, and of a contrivance for smoothing down or flattening the crimps, the holding and smoothing being performed by the same instrumentality in the machine represented in the drawings.

In the drawings the bed-plate of the machine is shown at *a a*. This plate is continued upward, and supports in proper guides a needle-stock, *b*, reciprocated by a lever, *c*, moved by an eccentric-rod, *d*, which receives motion from a revolving main shaft, *e*. This shaft carries at one end the ordinary revolving looper of the Gibbs machine, *f*, and has secured upon it a cog-wheel, *g*, into which engages a cog-wheel, *g'*. This latter wheel is mounted upon a counter-shaft, e^2, which carries another cog-wheel, g^2, which latter engages with a cog-wheel, g^3, mounted on a shaft, e^3, which latter carries another revolving looper, *f'*. The use of the cogs and shafts is to cause two loopers to revolve at the same velocity. The bed plate or frame also supports a presser-foot stalk, *h*, depressed, as usual, by a spring, and which carries a presser-foot, *h'*, that rests, as usual, with its lower surface on the table or platform that supports the goods. Upon the main shaft are mounted three cams, *i*, *j*, and *k*. The two latter actuate the crimper *l* and the former the crimper-presser *m*. The crimper lies above the table or platform upon which the goods are supported, is pivoted at one end to two rock-shaft arms, $l' l'$, which are fastened to a rock-shaft, l^2, and this shaft has two other arms, $j' k'$, secured to it, each of which is provided with a connecting-rod, $j^2 k^2$, the rods being pivoted to the arms. These rods embrace at their lower ends the shaft *e*, and are each provided with a pin, $j^3 k^3$. These pins extend over the cams, and the latter act upon them. It is best to make the rock-shaft arms adjustable upon the shaft, the connecting-rod pivots adjustable in the arms, and the cams adjustable upon the shaft, as shown in the drawings, in order to vary the time and extent of the motions of the rock-shaft, and consequently of the crimper. One of the connecting-rods has a pin, *o*, projecting from it, to which is hooked a spring, *o'*, the object of this arrangement being to move the shaft in a direction contrary to that in which it is moved by the cams. The crimper has at its acting end a chisel-edge, serrated and slotted, as at *l*, and reciprocates along the platform when no cloth is in the machine.

The cam *i* acts upon a pin, *i'*, projecting from a connecting-rod, i^2, pivoted in a rock-shaft arm, i^3, which is fastened to a rock-shaft, *m'*, to which is secured the crimper-presser *m*. The object of this contrivance, which is adjustable in its parts, is to lift the crimper-presser, which

is at other times pressed down upon the crimper by a spring, p, acting upon a rod, p', secured to the rock-shaft m'. Spools of thread are to be mounted upon the spindles q q, and their threads are to pass through tension apparatus, thread-controllers, &c., to and through the eyes of the two needles r r, in a manner usual in sewing-machines.

The operation of the machines is as follows: An end of a strip of muslin is to be laid upon the platform under the crimper and under the presser-foot, and the needles will descend and have their loops secured by the loopers. While the needles are still in the cloth the crimper has retreated as far as possible from them. The crimper-presser then descends, forced down by its spring, and bears the crimper upon the goods. The latter then advances and makes a crimp of the cloth lying between it and the line where the cloth is grasped between the presser-foot and the table, (see Fig. 14^{A},) the crimper being actuated by the cam j. The latter then holds the crimper at rest, and the needles leave the cloth. The cam k then acts upon the crimper, and it shoves the cloth and the crimp just made under the presser-foot, the latter smoothing down or flattening the crimp by its spring-pressure upon the goods. During this second advance of the crimper it pushes the goods along under the presser-foot. The crimper now pauses, and the needles enter behind the crimp just formed. (See Fig. 14^{B}.) Cam i now comes into action and lifts the crimper-presser, relieving the crimper from the pressure of the spring, so that the crimper may slide back without any tendency to ruck up the goods, and when m is elevated the cams j and k permit the spring to draw the crimper back, ready to take a new crimp. The crimper is slotted, as at l^3 l^3, so that the needles may pass through it while it holds the crimp formed and flattened, and may enter through one thickness of cloth, so that the upper part of the stitch lies over each crimp; but the relative positions of the needles and crimper may be varied so as to permit the needles to pass through the crimps. While l moves to crimp it acts as a crimper or folder or friller. After the crimp is formed it acts as a spacer to space the crimps apart and as a pusher to force the goods through the machine. The presser-foot and the table in conjunction act as a holder, holding the goods at rest while the crimp is formed, and the presser-foot alone acts as a smoother, flattening the crimp down smooth and to an edge while the goods are being crimped or pushed forward by the crimper. The needles alone will serve to hold the cloth while the crimp is being made, and we intend to use them for that purpose, or any agency acting as a piercer, like the needles, or as a compressor, like the presser-foot and table, the object of the contrivance being to hold the goods at rest while the crimp is being made.

The crimp may be flattened down while it is being formed by a spring-surface acting above the crimper in the same manner as the presser-foot, but at a different period of the operation.

The quantity of material taken up by each crimp depends upon the distance that the crimper vibrates downward from the holder or holding-line of the goods. The space between the crimps depends upon the length of the advance of the crimper after the crimp is formed, and in the machine shown in the drawings the range of motion of the crimper either to crimp or to space is adjustable. These motions in the machine shown in the drawings are derived from two cams, and there is a pause between them; but the motions may be derived from one cam or from any other mechanical contrivance, and the motions may also be continuous. We intend sometimes to add to the machine an ordinary rough-surface feed, acting below the cloth (at the time during which the crimper acts as a spacer) and feeding to the same extent as the crimper shoves the goods, in order to aid the latter in forcing the finished crimp along when there is a heavy pressure upon the presser-foot. We also intend to attach a weight to the finished end of the frill, not sufficiently heavy to draw the frill along, but so heavy as to aid in drawing it when the pusher does its work; and we also intend, by means of a cam or other mechanism, to cause the presser-foot spring to relax its pressure to a certain extent while the pusher is forcing the goods along.

The goods or strips of goods which we usually frill are hemmed on each side prior to being crimped; and in order to make such goods pass more easily through the machine, and at the same time flatten down that part of the crimp between the line of seam and the edge, we have contrived an auxiliary smoother, s. This is a springy piece of metal screwed down on top of the presser and projecting on each side of it, with a face just above the table, similar to that of the presser. When the finished frill projects on each side of the seam these faces are to lie on both sides of the presser. The spring of this piece of metal is distinct from that of the presser-foot. Its acting surfaces can rise without lifting the foot, and they thus permit the comparatively thick hem to pass easily, and at the same time prevent the hem from lifting the presser-foot, so as to interfere with its holding or smoothing action. A good frill can be made with a presser-foot alone when it is so narrow that the hems do not pass under it.

Both the presser-foot and the smoother are in practice slightly notched on the under edge, the straight sides of the notches being so placed as to resist any tendency of the crimper to draw the goods backward. This is a nicety of construction, not a necessity.

We intend at times to use the machine with one needle, making a frill like one-half of that shown in Fig. 13, and we intend to use any proper sewing mechanism in place of that shown so long as such mechanism is so com-

bined with the crimper and accessories as to make stitches of either one or two threads to hold the crimps in place.

The crimper may be a spring and bear constantly upon the goods, or it may have a spring acting constantly upon it; but as we usually frill delicate goods we prefer to relax its pressure, as described, while the crimper is retreating.

The crimper acts in combination with the table, impinging the goods upon it and sliding them along its surface. It also acts in combination with a holder—such as the presser-foot—and table or the needles while in the goods, or both of them, or some equivalent piercing or gripping mechanism.

We claim as of our own invention—

1. A crimper acting, substantially as described, to crimp goods and to space the crimps, in combination with a table or platform and a holding mechanism or holder substantially such as described, the combination acting substantially as specified, and we claim these also in combination with either one or two mechanisms for making stitches, substantially as specified.

2. In combination, a crimper and a smoother substantially such as described, and acting, substantially as specified, to fold the crimps to an edge.

3. A crimper whose acting edge is provided with slots, substantially as described, to admit the passage of a needle to secure the crimps as formed while said crimps are being held by the crimper.

4. In combination with a crimper substantially such as specified, a spring acting to force said crimper upon the goods while crimping them and relaxing its pressure while the crimper is retreating, substantially in the manner and for the purpose specified.

5. An auxiliary smoother having a mode of operation substantially as specified, in combination with a crimper and a holder or holding mechanism substantially such as described.

In testimony whereof we have hereunto subscribed our names.

C. O. CROSBY.
HENRY KELLOGG.

In presence of—
L. G. PECK,
C. M. SHELTON.

G. B. ARNOLD.

Sewing Machine

No. 28,139. Patented May 8, 1860.

Fig. 1.

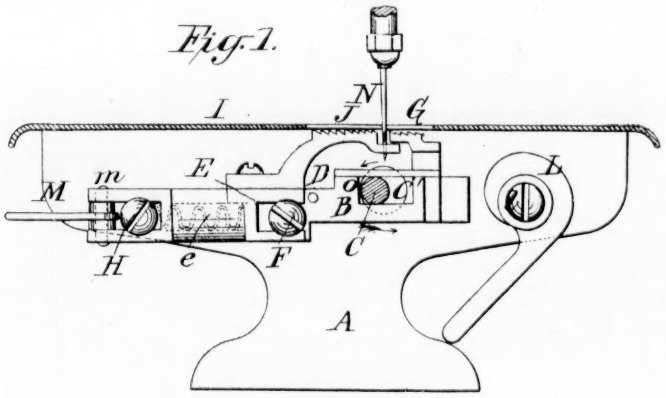
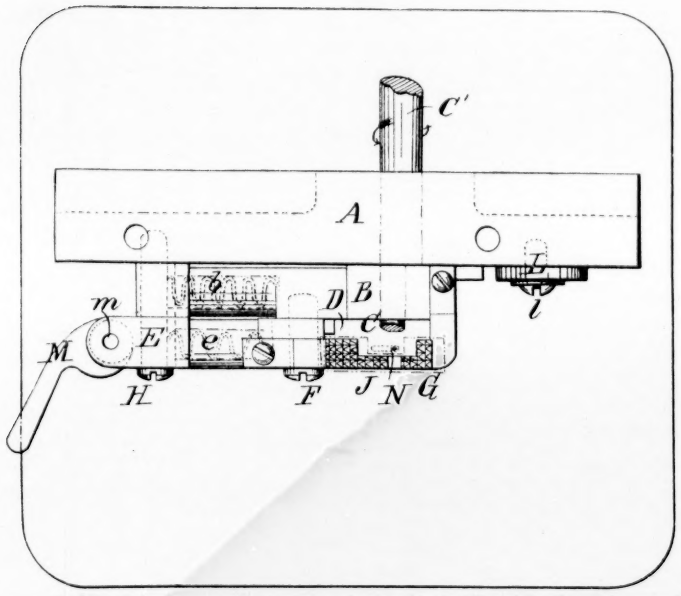


Fig. 2.



Witnesses:

Thomas D Stetson

S. N. Babcock

Inventor:

Geo. B. Arnold

N. PETERS. Photo-Lithographer, Washington, D. C.

10

UNITED STATES PATENT OFFICE.

GEORGE B. ARNOLD, OF NEW YORK, N. Y.

IMPROVEMENT IN SEWING-MACHINES.

Specification forming part of Letters Patent No. **28,139**, dated May 8, 1860.

To all whom it may concern:

Be it known that I, GEO. B. ARNOLD, of the city, county, and State of New York, have invented a new and useful Improvement in Sewing-Machines; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon.

In the manufacture of many garments, such as ladies' and children's dresses and undergarments and gentlemen's shirts, drawers, &c., it is necessary to sew one piece of cloth gathered up in small even folds or corrugations to another piece of cloth not so gathered, and until my improvement, herein described, I am aware of no machine that has done this. The practice has been to run a thread or threads, either by hand or with a machine, the whole length of the cloth to be gathered, and then by hand to draw up said cloth to the desired fullness, and after this to sew the same, either by hand or with a machine, to the cloth not gathered, thus securing the gathers and making the seam. This is a tedious operation. By my invention I am enabled to take two pieces of cloth of unequal length, and placing their edges together with the longer piece at the bottom, and by running them through the machine not only to gather the bottom cloth to any desired degree of fullness, but to sew them firmly together at the same time.

To enable others skilled in the art to make and use my invention, I will proceed to describe its construction and operation, by the aid of the accompanying drawings, in which—

Figure 1 is a vertical section of my invention, with a sufficient portion of a sewing-machine to illustrate its operation; and Fig. 2 is a plan view of the same with the plate (which is indicated by red lines) removed.

Similar letters indicate like parts in both figures.

A is that portion of a "Gibbs" sewing-machine which supports the cloth-plate I.

N is the needle, and C' the shaft through which the various motions of the machine are communicated.

C is an eccentric or cam on the end of C', which gives motion to the feeding device, and to which is attached the looping-hook. (Not shown in the drawings, as it forms no part of my invention.)

B is a slide, so attached to the standard A by the pin H that it is free to slide thereon in the direction of its length, and also to turn around the pin H. There is an opening made through B, in which the eccentric-pin C operates. This opening is of a width which nearly fits the eccentric C; but its length is such that C can play therein, giving B but little or no motion in the direction of its length. The other end of B is hollow, and a spiral spring, *b*, is inserted therein, which presses against the pin H and tends to force B toward the eccentric C and keep it in contact therewith at the point *o*. A cam, L, upon A regulates the distance to which B can move in that direction. To B is attached a roughened piece, G, which passes through a slot in the plate I at a point in front of the needle N, when the slide B is raised by the eccentric C, and feeds along the cloth placed thereon to the full extent of the motion of B.

So far the parts correspond with the usual feed-motion of the kind of machine represented.

By the side of B, I place a somewhat similar slide, E, turning also upon the pin H, and so attached to B by the pin F as to be capable of moving to a small extent relatively to B; but in all other directions its motions are controlled by those of B. This slide E is actuated in one direction by the pin or projection D, and in the other by a spiral spring, *e*, and the amount of its motion is graduated by the cam M, attached to its end by the pivot *m*. To this slide E, I attach another roughened feeding-bar, J, which projects through a slot in the plate I on the opposite side of the needle from the feeder G, and takes hold of the cloth after it has passed the needle and has been sewed. As the eccentric C revolves in the direction of the arrow from the position shown in the drawings, both feeders are lowered from contact with the cloth, and they follow the eccentric by the force of the springs *b* and *e* until the cam M strikes the pin H, when E remains stationary and B moves on until it strikes the cam L. If, then, the eccentric has not finished its stroke, it moves on independent of B, except to raise both G and J into contact with the cloth until it strikes the side *o*, when B is forced along, carrying with it the cloth. When the pin D strikes E, the latter is carried with B until the end of the stroke, and the parts are again in the position shown.

The operation of my invention is simply this:

When a piece of cloth is to be gathered and sewed to another piece of cloth, the cam M is so turned as to give to the slide E a shorter throw than the slide B has. The result of this is, the gatherer G, which takes hold of the under piece of cloth before it reaches the needle, is moved forward for a greater or less distance, while the same cloth is held still by the feeder J forward of the needle, and thus a fold is made in this cloth directly where the needle pierces it; then the projection D brings up against E and the feeder J is moved forward through a less space than that traversed by G. Thus the fold is connected past the needle and the stitch fastens it. The feeder J, taking hold of the under cloth only when it is already sewed to the upper, of course moves both and regulates the length of the stitch, while the relative throw of the gatherer G determines the amount of gather put into the lower piece of cloth.

By increasing the travel of B while the travel of E remains the same, I can increase the fullness of the gathers at pleasure; and by diminishing the travel of E while the travel of B remains the same I can produce a similar effect. In the first case the stitches remain of the same length as before, while in the latter case the stitches are shortened in proportion as the gathers become more full. Either of these modes of operating may be adopted, or both may be combined by dividing the change between the two cams, turning one a little in one direction and the other a little in the other direction, a perfect control of the operation being maintained by these cams, so that the fullness of the gathers may be varied indefinitely while the work is progressing. It is often desirable to vary the gathers in a seam for the sake of producing a better effect in the goods, and it is very frequently necessary to do so toward the end of a seam, in order to make the two pieces of cloth come out together.

When it is desired to use the machine, not for gathering, but for sewing an ordinary seam, all that is necessary is to so adjust the cams L M as to give to the gatherer and feeder the same throw, when an ordinary seam will be made, with any length of stitch required.

I have discovered that for an effective gathering apparatus in a sewing-machine two conditions are necessary, viz: First, that part of the apparatus, however it may be constructed, which forms the folds or gathers, must take hold of the cloth before it has reached the needle and release its hold on the same immediately after it has passed it; otherwise it will tend to carry both pieces of cloth equally, and thus form no gathers, and the "feeder," properly so called, must take hold of the cloth after the seam is made, so as to carry it evenly forward to regulate the length of the stitch; second, the movement of both these parts should be capable of independent and easy adjustment, so as to control with facility both the fullness of the gathers and the length of the stitches at the will of the operator.

Although I prefer the reciprocating movement in this apparatus for its greater simplicity and compactness, still the rotary may be used by making it conform, by suitable mechanical devices, to the conditions above enumerated.

I do not claim as my invention a feeder having a back-and-forward and up-and-down movement, for I am aware this is already in use; neither do I claim two distinct feed-wheels having a differential motion, for this is already patented; but

What I do claim as my invention for the improvement of sewing-machines is—

1. A gathering and feeding mechanism in two distinct parts, so constructed and operated that the gatherer takes hold of and moves the cloth up to the needle, leaving it immediately after the stitch is formed or at the point where it is formed, and the "feeder," properly so called, takes hold of and feeds the cloth after the seam is made.

2. The combination of the part E J with the part B G, or their equivalents, operating together substantially as described, and for the purposes specified.

3. Regulating the fullness of the gathers by varying the relative throw of the feeding devices, substantially in the manner herein described.

GEO. B. ARNOLD.

Witnesses:
JOHN OAKEY,
A. ARNOLD.

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2 Sheets—Sheet 1.

J. A. PIPO.

RUFFLING MACHINE.

No. 37,550. Patented Jan. 27, 1863.

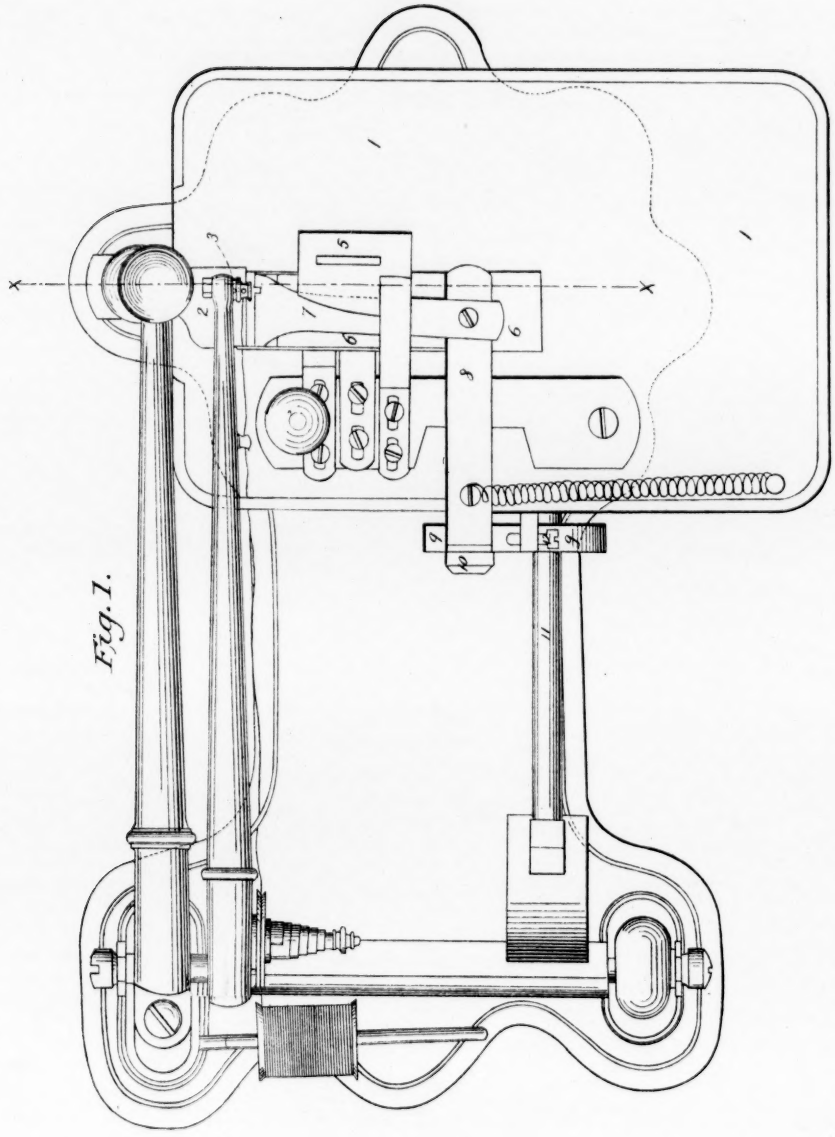

Fig. 1.

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

J. A. PIPO.

RUFFLING MACHINE.

No. 37,550. Patented Jan. 27, 1863.

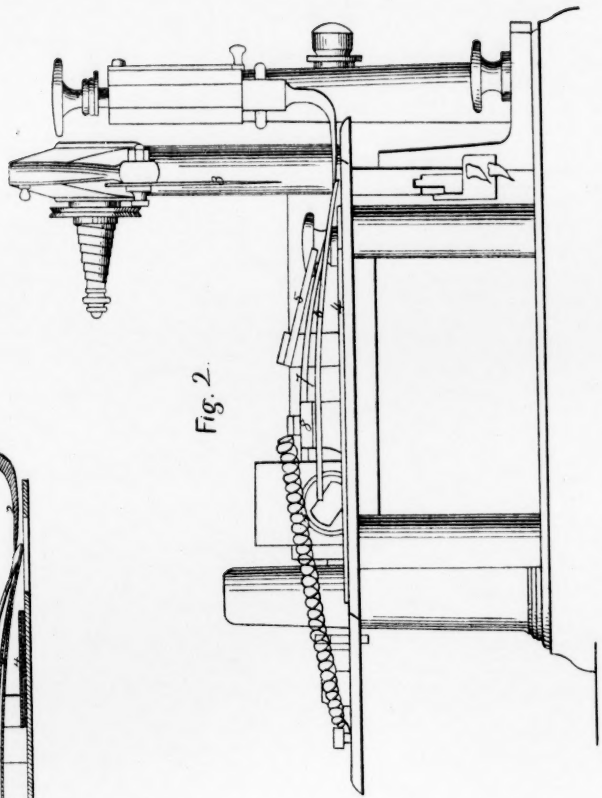

Fig. 2.

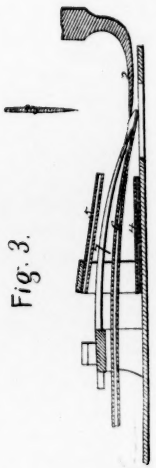

Fig. 3.

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UNITED STATES PATENT OFFICE.

JOHN A. PIPO, OF NEW YORK, N. Y., ASSIGNOR TO HIMSELF AND SAMUEL S. SHERWOOD, OF ACQUACKANONCK, NEW JERSEY.

IMPROVEMENT IN MACHINES FOR MAKING RUFFLES, &c.

Specification forming part of Letters Patent No. **37,550**, dated January 27, 1863.

To all whom it may concern:

Be it known that I, JOHN A. PIPO, of the city, county, and State of New York, have invented an Improvement in Machines for the Manufacture of Ruffles, of which the following is a specification.

The object of this invention is to provide means of forming and sewing a ruffle between two pieces or folds of cloth at one and the same operation, the ruffle and both pieces of cloth being secured by a simple seam.

This invention consists in the combination of three guides—one for the ruffling and one for each of the pieces of cloth between which the ruffling is sewed—and the pawl which forms the ruffling as the work progresses with a sewing-machine, by which the work is fed through and sewed, as hereinafter more fully set forth. In the case in which the ruffling is secured between two folds of the same piece of cloth a single guide, made for the purpose, may take the place of the two separate guides used when the ruffling is secured between two separate pieces of cloth to guide those separate pieces.

In the drawings, Figure 1 is a plan view, representing an ordinary Wheeler & Wilson sewing-machine with my improvement attached. Fig. 2 is an end view of the same, showing the end toward the observer, which is at the right hand in Fig. 1. Fig. 3 is a detail vertical transverse section, showing more fully certain parts at the left hand of the line *x x* as drawn partially across Fig. 1.

1 is the bed-plate, upon which, in an ordinary sewing-machine, the work is usually laid to be sewed. 2 is the presser, by which the work is kept down to its place. 3 is the needle. 4 is the lower and 5 is the upper guide, through which the strips of cloth between which the ruffling is to be sewed are passed. These guides are made tubular, as represented in Fig. 3, the internal width of the tube or opening at the outer end being sufficiently wide to admit a strip of cloth of the proper width. The end next the needle of each of these pieces or guides is so formed as to turn in the edge of the cloth to form a hem, said edge being turned in each case toward the other guide, so that the fold or hem shall come next the ruffling.

6 is a tube, which guides the strip of cloth of which the ruffling is formed. This tube is flat, like the others, and with a proper internal width to receive and guide the cloth intended to be used. It is open on the top near the end toward the needle to receive pawl 7, by which the ruffling is formed, so as to allow said pawl to work directly upon the cloth. This pawl is provided at the end next the needle with points or a roughened surface or sharp edge, which will take hold of the cloth and move it forward upon the smooth surface which forms the under part of the guide 6, and is attached to the bar 8, which extends over the other attachments and forms a part of the rocking lever 9, hung to a pendant attached to the bed-plate of the machine. This lever 9 is vibrated on its axis 10 by means of the connecting-rod 11, which rises against the horizontal portion of the lever, and thus moves the cloth from which the ruffling is formed forward to form the ruffling. The motion of this lever is adjusted by means of the set-screw 12, which restricts its return. The bar 8, and consequently the lever 9, are drawn back from each forward vibration by a spiral spring, 13, which is attached at one end to this bar and at the other end to the bed of the machine.

Operation: The proper strips of cloth, having been inserted in their respective guides, are brought forward, so as to be operated upon by the feed motion. Motion is given to the machine by means which are usually employed for that purpose and in the ordinary manner. The edges of the cloth between which the ruffling is to be sewed are folded in by the guides, as before stated, and the whole three strips are fed forward and sewed together in the same manner that other sewing is done on the same machine by a single seam. The ruffle, which is guided in between the other strips of cloth, is formed by pawl 7, which is made to move at each stroke of the needle a sufficient distance over and above the feed

form the ruffle desired, and this may be adjusted to form various grades of ruffling by the means already described.

It is obvious that tubes of different widths may be employed to form ruffling of different widths or to admit strips of cloth of different widths between which the ruffling is to be sewed.

I claim—

The combination, with a sewing-machine, of the guide 6, the guides 4 and 5, or a double guide in their place, intended to form two folds of a single piece of cloth, and the pawl 7, substantially as herein described.

JOHN ANDREW PIPO.

Witnesses:

L. A. ROBERTS,

THOS. P. HOW.

A.D. 1867. Nov. 4. N°3093.
ORR'S SPECIFICATION.

Fig. 1.

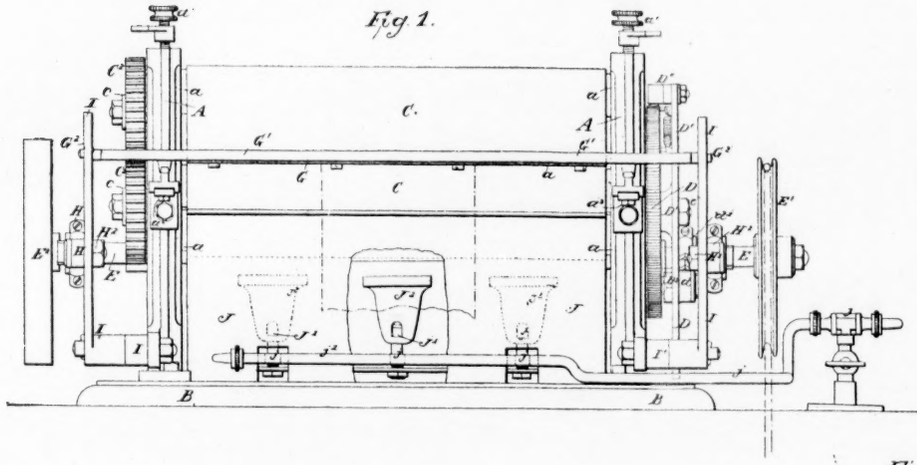


Fig. 3.

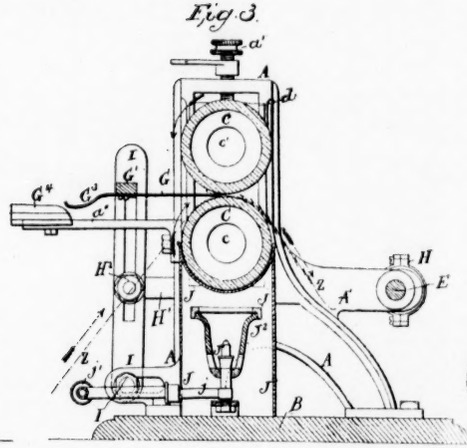


Fig. 4.

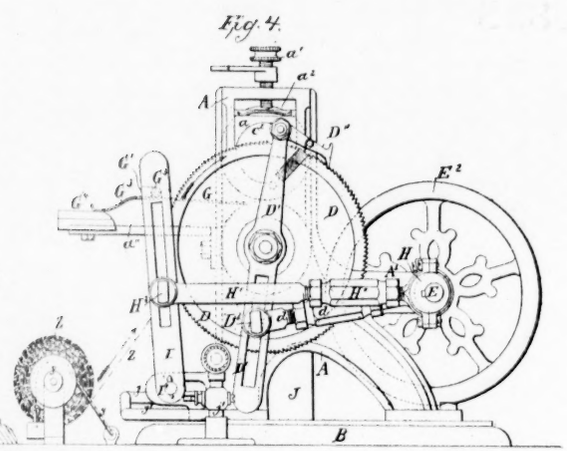


Fig. 4a

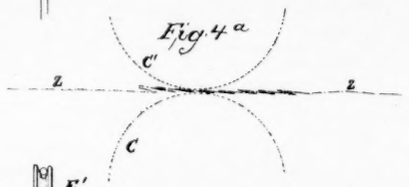


Fig. 6a

Fig. 2.

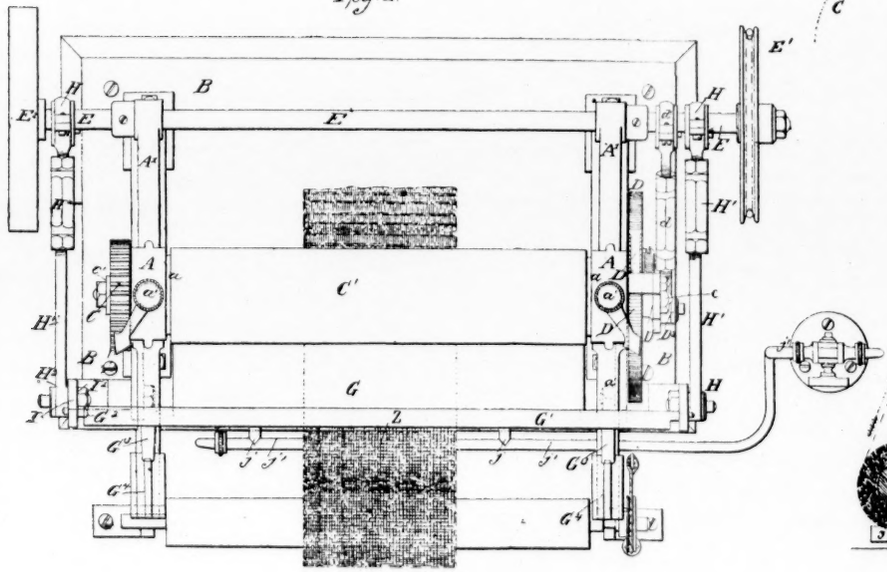


Fig. 5.

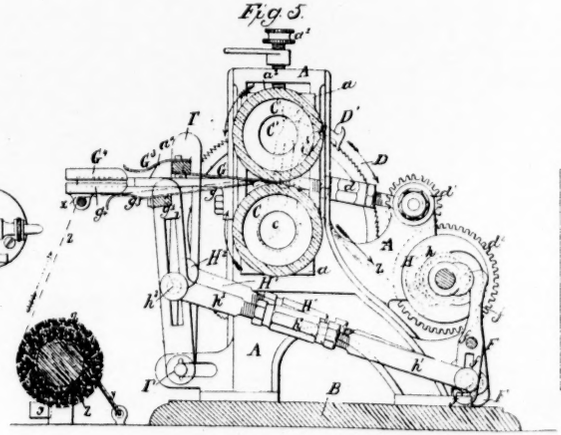
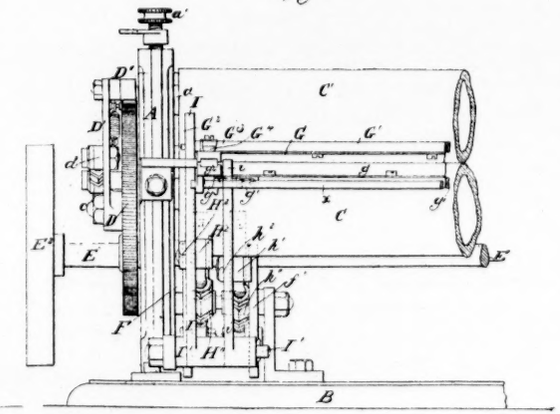


Fig. 6.



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G. B. ARNOLD.

Sewing-Machines.

No. 6,159. Reissued Dec. 1, 1874.

Fig 1.

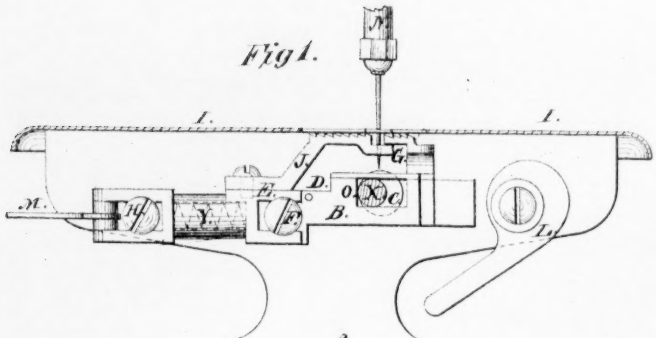


Fig 3.

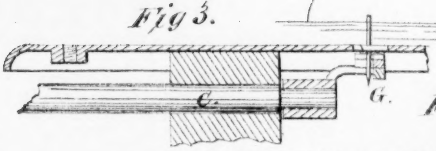
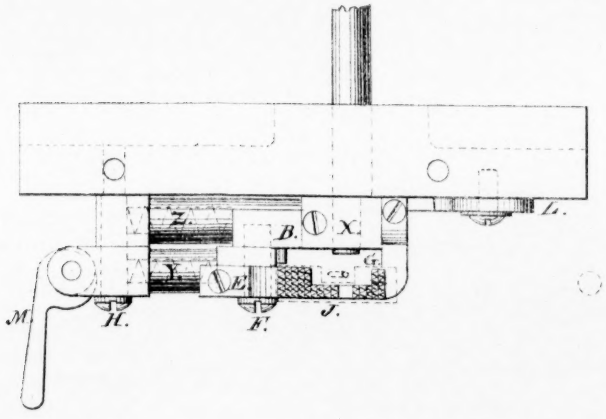


Fig 2.



Witnesses:

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John R. Sleppert

Inventor:

Geo. B. Arnold

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

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UNITED STATES PATENT OFFICE.

GEORGE B. ARNOLD, OF NEW YORK, N. Y.

IMPROVEMENT IN SEWING-MACHINES.

Specification forming part of Letters Patent No. 28,139, dated May 8, 1860; extended seven years; Reissue No. **6,159**, dated December 1, 1874; application filed July 22, 1874.

To all whom it may concern:

Be it known that I, GEORGE B. ARNOLD, of New York city, have invented a new and useful Improvement in a Machine for Making Ruffles; and I do hereby declare the following to be a full and correct description of the same, reference being had to the accompanying drawings.

The object of my improvement is twofold: first, to make a regular ruffle; second, to fasten the ruffle thus made by stitching it before it leaves the machine, whereby it will be finished for use.

It is desirable that a ruffle, whether made by hand or machinery, should be regular and uniform, inasmuch as it is to be used as an ornament, and its beauty depends, among other things, upon these qualities; and therefore any machine which will not make such a ruffle is practically valueless as a ruffling-machine.

A machine has heretofore been invented which is designed as a machine for stretching or puckering cloth, and sewing it while so stretched or puckered.

I have invented a machine containing the true principles for the production of a regular and uniform ruffle, and have made the same practically successful and valuable to the public.

One way in which ruffles are made by hand is that the operator with one hand folds a certain definite quantity of the cloth, and passes the fold thus made to the other hand, which holds the cloth down upon the table, while the folding-hand again returns and takes up another portion of the cloth, as nearly equal as the skill of the operator will allow, and brings that new portion forward in the shape of a fold to the holding-hand, which, by its pressure, creases the cloth and gives it a set, which is to be afterward secured by sewing or some other means. In this operation the hand which makes the fold must bring it within reach of the holding-hand, in order to secure the fold that has been made.

An improved hand-tool was made by Welcome Whittaker to aid in the forming of folds, for which improvement he obtained Letters Patent on the 14th of November, 1848.

These operations, thus performed imperfectly by hand and hand-tools, I propose to accomplish by my improved machine, and I, in part, imitate the operation by hand already described by bringing the fold which is made by the folding part of the mechanism up to a feeder, which seizes the fold, and which also passes it on through the machine to make room for a succeeding fold. My improved machine also sews the fold thus made before it leaves the machine.

The machine on which I exhibit one form of this invention is shown in the accompanying drawing, in which—

Figure 1 represents a sectional elevation of the machine. Fig. 2 represents a plan, partly in section, looking from above. Fig. 3 represents a vertical section through the machine in the line of the driving-shaft, and through the center of it.

In each figure similar letters represent similar parts.

The frame of the machine and the sewing apparatus connected therewith are similar to, and, in fact, are made from, the well-known form of the Willcox & Gibbs sewing-machine, to which the other parts are added, together constituting my invention.

A is the main frame of the machine. C is the revolving shaft of the machine, which is driven by the well-known means. On the inner end of this shaft is the eccentric pin X, which imparts the reciprocating movement to the devices employed in ruffling and feeding the cloth. The hook for looping the thread for sewing is at the end of the pin, but is not shown in the drawing, being a well-known device for that purpose.

E is the reciprocating feed-bar of the ordinary sewing-machine, to which the roughened surface J is attached, passing through the table of the machine I. This bar E is forked or slotted at its outward end, and is mounted upon a pin, H, which is fixed in the frame of the machine for that purpose, and which is straddled by the forked end of the bar E. Between the jaws of this forked end is mounted an eccentric cam, M, provided with a handle for the purpose of adjusting its position and regulating the throw of the feeding apparatus. This cam rests against the pin H when the feeding-bar E is at the extreme

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limit of its movement to the right, as the drawing appears to the observer; and it is apparent that as this cam is adjusted it will permit a longer or shorter movement of the feeding-bar before that movement is arrested by the pin H. A coiled spring, Y, is contained in the feeding-bar E, and by pressing against the pin H at one end of it, and against the feeding-bar at the other end, it continually forces the feeding-bar to the right, and would move it still farther than shown in the drawing if its motion were not arrested by the cam M.

The inner end of this feeding-bar is also provided with a slot, which straddles the eccentric pin F, which is screwed into the bar B. This pin F, by being turned on its axis with a screw-driver, will slightly raise or lower the feed-bar E, so as to change the position of the roughened surface J relatively to the bar B. The bar B receives motion from the revolving shaft C, and communicates motion to the ruffling apratus and to the feeding apparatus. This bar B is parallel to the feed-bar E, and at its outer end is provided with an open fork, by which it is mounted on and supported by the pin H. A spring, Z, arranged in a manner similar to the spring Y in the feed-bar E, tends to move the bar B away from the pin H, and to press it against the revolving eccentric pin X at the point of contact O, which pin X passes through a long slot in the bar B, whose width vertically is no greater than the diameter of the pin X, but whose length is at least as great as the length of the eccentric movement of that pin. When the shaft C revolves, the spring Z presses the bar B against the pin X at the point O, and, if there is nothing to prevent it, the bar B would follow the eccentric pin X in contact with it to the extreme end of its movement. To regulate, however, the extent of the movement of the bar B, the cam L is centered to the frame of the machine in such a position that the bar B will come in contact with its eccentric edge sooner or later, according to the position of the cam L, and when it does come in contact with this cam it cannot follow the eccentric pin X, and thus the length of its throw is limited.

Attached to this bar B is a roughened-surface feeding apparatus, G, which passes through the plate I of the machine in a manner similar to the ordinary roughened-surface feed.

In the bar B is a pin, D, so fixed that it will come into contact with the end of the bar E just in time to prevent the roughened surface G from coming into contact with the roughened surface J. As the shaft C revolves and carries the eccentric pin X away from the position shown in the drawing, the bar B follows the eccentric pin, and the bar E follows the bar B, both being driven in that direction by their respective springs. If the cam M is set so as to limit the travel of the bar E, the bar E will be arrested before the bar B has ceased to move, and the bar B will continue to follow the eccentric pin X either to the end of its movement, or so far as may be desired for the purpose of forming a fold, which distance will be determined by the set of the cam L. As the shaft C continues to revolve the movements will be reversed—that is to say, the ruffling-bar B will be first moved toward the bar E until the pin D comes into contact with it, after which the two bars will move together till the eccentric pin X has made its full stroke. By varying the adjustment of the cams M and L, the relative movements of the ruffling and feeding apparatus may be varied indefinitely, and any sized folds may be formed within the limits of the movements of the mechanism as constructed in any particular case.

N is the needle-bar, carrying a needle for the purpose of sewing down the ruffle when made.

Operation: The cloth to be ruffled is placed in the machine, and the cloth will then be pressed down upon the two roughened surfaces J and G, the effect of which must be to fold that portion of the cloth which lies between the ruffler G and the feeder J, because the feeder J holds fast the cloth at a point in advance of the portion which is to be folded, and the ruffler G advances upon that point, and, as a consequence, there must be slack cloth between these two points, which slack cloth, by the advance of the ruffler G, is doubled upon itself into a fold. A fold being thus formed, the next step is to pass it out of the machine, and, if desired, to sew it fast before it leaves the machine; and these operations are performed in the following manner: The ruffler G with the fold just formed, having overtaken the feeder J, continues its movements, taking with it the feeder J, and carrying the fold to where the feeder J traverses, and where it can be caught by the feeder J in its succeeding movement. In this position the fold is left under pressure, and the ruffler G and feeder J, by sinking, release their hold upon the ruffle, and retreat for a new operation. As the shaft revolves the feeder J retreats as far as the length of made ruffle which the machine is to deliver at each stroke of the feeder, which is determined by the set of the cam M, and the ruffler G retreats as much farther than the feeder J as the length of cloth which is required to be folded in the manner already described into the particular kind of ruffle to be made; and so this additional distance which the ruffler G retreats becomes the measure of the fold to be formed. And thus the operation is repeated, a new fold being formed by the ruffler G, and by it brought into the gripe of the feeder J, and a fold already formed being moved along by the feeder J at each operation of the machine. When it is desired to more permanently secure the ruffle before it is ultimately delivered from the machine, the well-known sewing mechanism shown and suggested in the drawing may be employed to stitch through the folds at every stroke of the machine when the

cloth is at rest, in the manner well known for sewing any fabric which is passing under the presser-foot of a sewing-machine. When it is desired to vary the length of the fold, the ruffler G is adjusted by the use of the cam L, so as to have a longer or shorter movement; and it is obvious that the width of the fold may be indefinitely increased by increasing the length of this stroke of the ruffler G; and, in order to preserve the desirable pressure upon the cloth, the eccentric pin F may be turned with a screw-driver, the effect of which will be to raise or lower the level of the surface of the feeder J relatively to the level of the surface of the ruffler G. It must be evident now that my machine forms a ruffle in essentially the same way as I have said it was sometimes formed by hand—that is to say, the ruffler G forms the fold by the assistance of the feeder J, which holds the material in advance of the ruffler G at a definite distance, which distance measures the length of the fold to be formed, and the ruffler G also delivers the fold thus formed to the feeder J, which presses it and passes it out of the machine.

I do not limit myself to the special devices for ruffling or feeding which are exhibited in my machine, as these devices are simply equivalents of analogous devices, which have been used in sewing-machines for the purpose of feeding the cloth in these machines; neither do I claim two distinct feed-wheels having a differential motion, for this is already patented.

It is also apparent that any of the various kinds of sewing-machines may be used to secure the ruffle formed by means of the combination described, and that, if no needle is used at all, the machine will fold and deliver a creased ruffle, which may subsequently be sewed, if desired.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. A machine composed of a ruffler and a feeder, in which the ruffler folds the cloth to be ruffled and brings the fold up to the feeder, and the feeder holds the cloth, as described, in advance of the ruffler while the fold is being formed, all substantially in the manner described.

2. A machine composed of a ruffler and a feeder, substantially as described, in which the relative movements of the ruffler and feeder measure the width of fold to be formed, and in which the ruffler folds the cloth to be ruffled and brings it up to the feeder, and the feeder holds the cloth, as described, in advance of the ruffler while the fold is being made, and afterward feeds the formed ruffle through the machine, all substantially in the manner set forth.

3. A machine composed of a ruffler and a feeder, substantially as described, in which the relative movements of the ruffler and feeder measure the width of the fold to be formed, and in which the ruffler folds the cloth to be ruffled and brings it up to the feeder, and the feeder holds the cloth, as described, in advance of the ruffler while the fold is being made, and afterward feeds the formed ruffle through the machine, in combination with a sewing mechanism, substantially as set forth.

4. In a ruffling-machine, the combination of a reciprocating ruffler and mechanism, substantially as described, for increasing or decreasing at pleasure the throw of the same, for the purpose of regulating the size of fold, substantially as set forth.

5. The combination, with the feed of a sewing-machine, of a reciprocating ruffler and mechanism, substantially as described, for adjusting the throw of the same independently of the feed, substantially as set forth.

6. In a ruffling-machine, a reciprocating ruffler whose forward movement to make the ruffle terminates invariably at the same point, and whose throw for the purpose of determining the size of the fold to be made by it is regulated by increasing or decreasing the extent of its backward or retreating movement, substantially in the manner described.

GEO. B. ARNOLD.

Witnesses:

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270

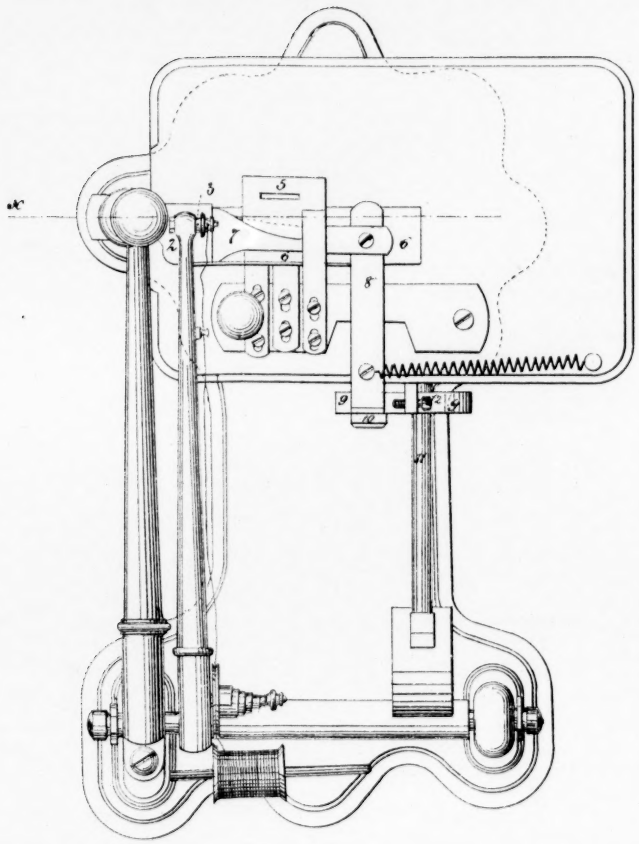
2 Sheets—Sheet 1.

J. A. PIPO.

MACHINE FOR MAKING RUFFLES.

No. 6,565. Reissued July 27, 1875.

Fig: 1.



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Inventor:
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2 Sheets—Sheet 2.

J. A. PIPO.

MACHINE FOR MAKING RUFFLES.

No. 6,565. Reissued July 27, 1875.

Fig: 2.

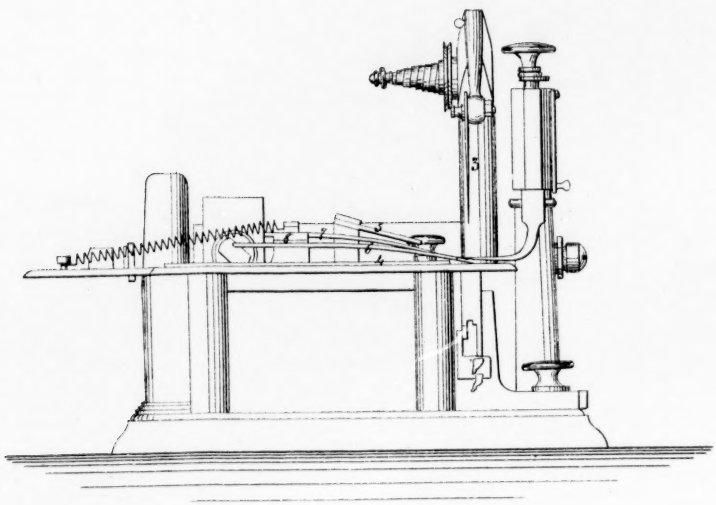
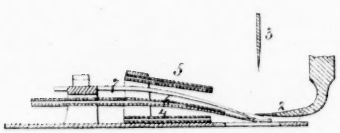


Fig: 3.



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Inventor:
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UNITED STATES PATENT OFFICE.

JOHN A. PIPO, OF NEW YORK, N. Y., ASSIGNOR, BY MESNE ASSIGNMENTS, TO GEORGE H. WOOSTER.

IMPROVEMENT IN MACHINES FOR MAKING RUFFLES.

Specification forming part of Letters Patent No. 37,550, dated January 27, 1863; Reissue No. **6,565**, dated July 27, 1875.

To all whom it may concern:

Be it known that I, JOHN A. PIPO, of the city, county, and State of New York, have invented certain Improvements in Ruffling or Plaiting Mechanisms, of which the following is a specification.

This invention relates to a mechanism for forming ruffles or plaiting fabrics; and it consists in the combination in a ruffling mechanism of a flexible ruffling-blade, and with such blade is combined a guide adapted to guide the material to which the ruffle is to be attached, and also other parts or devices, substantially as hereinafter described, to form a ruffle to be connected by a series of stitches.

Figure 1 is a plan view, representing an ordinary Wheeler & Wilson sewing-machine with my improvement attached. Fig. 2 is an end view of the same, showing the end toward the observer which is at the right hand in Fig. 1. Fig. 3 is a detail vertical transverse section, showing more fully certain parts at the left hand of the line *x x*, as drawn partially across Fig. 1.

1 is the bed-plate, upon which in an ordinary sewing-machine the work is usually laid to be sewed.

2 is the presser, by which the work is kept down to its place.

3 is the needle.

4 is a lower and 5 is an upper guide, through which strips of cloth between which the ruffling is to be sewed are passed. These guides are made tubular, as represented in Fig. 3, the internal width of the tube or opening at the outer end being sufficiently wide to admit a strip of cloth of the proper width. The end next the needle of each of these pieces or guides is so formed as to turn in the edge of the cloth to form a hem, said edge being turned in each case toward the other guide, so that the fold or hem shall come next the ruffling.

6 is a tube, which guides the strip of cloth of which the ruffling is formed. This tube is flat, like the others, and with a proper internal width to receive and guide the cloth intended to be used. It is open on the top, near the end toward the needle, to receive blade 7, by which the ruffling is formed, so as to allow said blade to work directly upon the cloth. This blade is a spring or is made flexible, and is provided at the end next the needle with points or a roughened surface or sharp edge, which will take hold of the cloth to be ruffled and move it forward upon the smooth surface to which it is opposed, and its acting-edge is preferably turned or bent toward the surface against which it acts to form the material between it and the surface into a ruffle. The blade is adjustably attached to bar 8, actuated by the rocking or elbow lever 9, hung to a support or pendant connected with the bed-plate of the machine. This lever 9 is vibrated on its axis 10 by means of the vibrating member or rod 11, connected with and operating the needle and its carrier, which rises against the horizontal portion of the lever and causes it to move the blade forward and form the cloth on which it bears into a ruffle. The movement of the blade back from the needle is regulated by means of a set-screw, 12, which restricts the return of the lever and blade. The bar 8, and consequently the lever 9, is drawn back from each forward vibration by a spiral spring, 13, which is attached at one end to this bar and at the other end to the bed of the machine, and the end of the blade may be made to terminate at a greater or less distance from its carrying-bar by means of a slot and set-screw. The operation of the lever is to press the spring-blade on the goods when advancing to form the ruffling, while it is rocked or lifted from the goods during its retreating movement, and the pressure of the blade on the material is thereby diminished or removed.

Operation: The strip of cloth to be ruffled is passed under the blade and between it and the presser, and the plain or band material is led through guide 5, when the plain piece is to rest on top of the ruffled strip and under the presser, where, as the material is ruffled and sewed, it is carried forward by the feeding mechanism such as is usually employed for that purpose and in the ordinary manner. The edge or edges of the cloth, to or between which the ruffling is to be sewed, is or are folded in by the guides, as before stated, and the strips used are fed or moved forward in the same manner that other fabrics are moved on the same machine. The ruffle is formed by

blade 7, which is made to reciprocate at each stroke of the needle a sufficient distance over and above the support or surface adapted to sustain the material to be ruffled against the action of the blade to form a ruffle, having folds or plaits of the size desired, the size of the fold to form various grades of ruffling being determined by the means already described.

It is obvious that guides of different widths may be employed to admit strips of cloth of different widths, to or between which the ruffled material is to be sewed.

It will be noticed that the presser or holder 2, which bears on the ruffled material to flatten and smooth it, extends laterally from the needle hole or opening in the presser or holder, and the end of the ruffling-blade is wide enough to extend laterally from the needle-hole in the foot for a like distance, and the material being ruffled is held down from its line of stitching to its edge by a solid or unyielding presser or holder, but the presser or holder and blade being preferably adapted in width to the width of the ruffled material to press it for its whole width.

I am aware that a rough-surfaced feeder and ruffler have been employed to engage a piece of material to be ruffled, forming the gather in and moving the ruffled piece forward, the ruffler and feeder both engaging the ruffled strip, and in connection with such mechanism a separator has been employed to separate a band from the ruffled strip, the band being laid on the surface of the ruffled strip engaged on its under side by the ruffler and feeder made as four-motioned feeding devices, and I am also aware of United States Patent No. 14,475.

What I claim, and desire to secure by Letters Patent, is—

1. In a ruffling mechanism, a spring or flexible blade having its acting edge turned or bent toward the surface against which it acts to form the ruffle, in combination with a carrier to which the blade is rigidly attached, substantially as described.

2. A ruffling-blade arranged above the cloth-plate and combined with an actuating lever adapted to carry and press the blade on the goods in advancing and to relieve the pressure of the blade from the surface of the goods while retreating, substantially as described.

3. A blade adapted to form but not to space a fold or plait in a strip to be ruffled, in combination with a feed to engage and move the material after the ruffle is formed, substantially as described.

4. The combination, with a flexible ruffling-blade, of an actuating-lever or rocking shaft, to which the said blade is rigidly affixed, substantially as described.

5. The combination, with a ruffling-blade and a support for the material to be ruffled, of a guide adapted to present a band for the ruffled material to the action of sewing mechanism, substantially as described.

6. The combination, with a ruffling-blade and a support for material to be ruffled, of a guide adapted to turn the edge of a band and present it to the action of sewing mechanism, substantially as described.

7. The combination, with the actuating-lever and ruffling-blade, of a regulating device to regulate the extent of backward movement of the blade without affecting the position to which the forward end of the blade moves, for the purpose set forth.

8. In a ruffling or plaiting mechanism, a spring or flexible blade rigidly affixed to its carrier, in combination with a surface opposed to the blade and adapted to sustain the material being ruffled against the action of the blade, substantially as described.

9. In a ruffling or plaiting mechanism, a pressing or holding mechanism having a solid or unyielding surface arranged and adapted to cover and press the whole width of the plaited fabric, substantially as described.

10. In a ruffling mechanism, the combination, with a blade and rocking lever, of a vibrating member of the needle-actuating mechanism adapted to rock the lever and move the blade to form a ruffle, substantially as described.

11. In a ruffling mechanism, a support for an elbow-lever, in combination with an elbow-lever pivoted at its angle to the support and adapted at one end to operate a ruffling-blade rigidly affixed thereto and to have motion imparted to it at its other end, substantially as described.

12. The combination of the ruffling-blade and its carrier with adjusting mechanism to determine the position of the forward or working edge of the ruffling-blade with relation to its carrier, substantially as described.

13. The combination of a rocking or elbow lever and an adjustable ruffling-blade operated by the lever with mechanism, substantially as described, for adjusting the throw of the lever.

JOHN A. PIPO.

Witnesses:
N. K. BARNUM,
PH. BLOHM.